

Commonwealth of Kentucky
Division for Air Quality
STATEMENT OF BASIS / SUMMARY

Title V, Construction / Operating
Permit ID: V-20-028
Madisonville Compressor Station
7500 Nebo Road, Madisonville, KY 42431
January 20, 2021
Source ID: 21-107-00134
Agency Interest #: 44049
Activity ID: APE20200001, APE20200002

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SECTION 1 - SOURCE DESCRIPTION

SIC Code and description: 4922, Natural Gas Transmission

Single Source Det. Yes No If Yes, Affiliated Source AI:

Source-wide Limit Yes No If Yes, See Section 4, Table A

28 Source Category Yes No If Yes, Category:

County: Hopkins

Nonattainment Area N/A PM₁₀ PM_{2.5} CO NO_x SO₂ Ozone Lead

PTE* greater than 100 tpy for any criteria air pollutant Yes No

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 250 tpy for any criteria air pollutant Yes No

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) Yes No

PTE* greater than 25 tpy for combined HAP Yes No

*PTE does not include self-imposed emission limitations.

Description of Facility:

ANR's Madisonville Compressor Station is located in Hopkins County, KY. The station transports natural gas along a natural gas pipeline by receiving inlet natural gas and compressing the gas to increase the pressure in the pipeline and maintaining the downstream flow.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: V-20-028 Activity: APE20200001, APE20200002

Application Received: 6/30/2020, 8/12/2020 Application Complete: 10/27/2020

Permit Action: Initial Renewal Significant Rev. Minor Rev. Administrative

Construction/Modification Requested? Yes No NSR Applicable? Yes No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action Yes No

APE20180001: The Division received the application for the replacement of T3 (1,000 gallon lubricating oil tank) with T3N on May 1, 2018.

Description of Action:

AAP20190001:

- Designation of Keith Mossman as the Responsible Official effective October 21, 2019.

APE20200001:

- Renewal application

APE20200002:

- Removal of existing emission units EU 001 through 009 and CB001.
- Proposed installation of EU 011, EU 012 (Compression Turbines), EU 013 (Emergency Generator), and EU 014 (Fuel Gas heater).
- Update to Fugitive component count.
- Update of Section C to represent the removal of Tanks T2 through T15 and T23.
- The addition of 30 space heaters (to replace IA1) and T16.

V-20-028 Emission Summary				
Pollutant	2019 Actual (tpy)	Previous PTE V-15-038 R1 (tpy)	Change (tpy)	Revised PTE V-20-028 (tpy)
CO	82.86	438.94	-256.82	182.12
NO _x	989.19	4,092.76	-4,006.75	86.01
PT / PM ₁₀ / PM _{2.5}	10.54	39.02	-30.36	8.66
SO ₂	0.18	0.65	71.67	72.32
VOC	39.12	133.78	-104.44	29.34
Lead	0.001	0.00	0	0.00
Greenhouse Gases (GHGs)				
Carbon Dioxide	35935.55	12,9207	25,890	155,097
Methane	88.74	103.60	620.18	723.78
Nitrous Oxide	0.07	0.24	0.05	0.29
CO ₂ Equivalent (CO ₂ e)	38,175	13,1870	41,407	173,277

V-20-028 Emission Summary				
Pollutant	2019 Actual (tpy)	Previous PTE V-15-038 R1 (tpy)	Change (tpy)	Revised PTE V-20-028 (tpy)
Hazardous Air Pollutants (HAPs)				
Acetaldehyde	2.47	8.55	-8.48	0.07
Acrolein	2.10	7.46	-7.44	0.02
Benzene	0.43	1.57	-1.55	0.02
Formaldehyde	16.80	58.53	-57.52	1.01
Hexane; N-Hexane	0.76	1.382	-0.592	0.79
Methanol	0.77	2.67	-2.666	0.004
Toluene	0.23	0.85	-0.68	0.17
Xylenes (Total)	0.07	0.26	-81.29	0.08
*Combined HAPs:	23.63	81.37	-8.48	2.20

*Facility will become a minor source of HAPs after the significant revision proposed in APE20200002

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 011 (711) and 012 (712), Compression Turbines

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
¹ NO _x	25 ppm (1.2 lb/MWh) at 15% O ₂	Table 1 of 40 CFR 60, Subpart KKKK	EU 011 and EU 012: 0.06 lb/mmBtu, Manufacturer Data	Initial and annual testing as outlined in 40 CFR 60.4400(a)
² NO _x	150 ppm (8.7 lb/MWh) at 15% O ₂			Keep records of Manufacturer Emissions profile at operating loads
SO ₂	0.060 lb/mmBtu	40 CFR 60.4330(a)(2)	EU 011 and 012: 20 gr S/100 scf, emission limit	The permittee shall monitor and record the fuel quality

¹NO_x: Normal operation; ²NO_x: <75% of peak load or at temperatures less than 0 °F.

Initial Construction Date: Proposed March 2021

Process Description:

Emission Unit 011(711), Solar Mars 100 Compressor Turbine

Model: Solar Mars 100-16000S with SoLoNO_x burners.

Power: 15,473 hp (11.54 MW) (@ 32°F)

Maximum Operating Rate: 114.47 mmBtu/hr (LHV @ 32°F)
 127.06 mmBtu/hr (HHV @ 32°F)

Primary Fuel: Natural Gas

Controls: None

Emission Unit 012 (712), Solar Titan 130 Compressor Turbine

Model: Solar Titan 130-23502S with SoLoNO_x burners.

Power: 22,759 hp (16.97 MW) (@ 32°F)

Maximum Operating Rate: 155.46 mmBtu/hr (LHV @ 32°F)
 172.56 mmBtu/hr (HHV @ 32°F)

Primary Fuel: Natural Gas

Controls: None

Applicable Regulation:

401 KAR 60:005, Section 2(2)(ffff), 40 C.F.R. 60.4300 to 60.4420, Table 1 (Subpart KKKK), Standards of Performance for Stationary Combustion Turbines.

State-Origin requirements:

401 KAR 63:020, Potentially Hazardous matter or toxic substances.

Non-applicable Regulation:

401 KAR 51:210. CAIR NO_x annual trading program, 401 KAR 51:220. CAIR NO_x ozone season trading program, and 401 KAR 51:230. CAIR SO₂ trading program are not applicable as there are no units at the facility that drive generators that produce electricity for sale, and the turbines do not meet the definition of an "Industrial boiler or turbine" in 401 KAR 51:001 by having a maximum design heat input of 250 MMBTU per hour or more.

Emission Unit 011 (711) and 012 (712), Compression Turbines

401 KAR 63:002, Section 2(4)(dddd), 40 C.F.R. 63.6080 to 63.6175, Tables 1 to 7 (Subpart YYYY), National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines, is not applicable as the source will no longer be considered a major source for HAPs once the existing engines (EU 001 through EU 008) are shutdown.

40 CFR 64, Compliance assurance monitoring, is not applicable because the proposed turbines will not use any add-on emission controls and will be subject to a federal NSPS.

Comments:

NO_x, CO and VOC are calculated based on the SOLONO_x burner guarantee for both normal, low temp, low load, and startup/shutdown. PT/PM₁₀/PM_{2.5} and HAP emissions are calculated based on AP-42 Chapter 3.1 Table 2a. SO₂ emissions are calculated based on 20 gr S/100scf emission limitation. The maximum low temp operating hours are calculated as a conservative 200 hrs per year, based on historical weather data. Low load maximum operational hours are calculated at 100 hours per year, based on projected operations, and there are an estimated 200 startup/shutdown events.

To meet the requirements of 40 CFR 60, Subpart KKKK the permittee shall perform initial and annual NO_x (no more than 14 calendar months following the previous performance test) testing, and monitor the fuel quality for S in accordance with 40 CFR 60.4365(a). If NO_x test is less than or equal to 75 percent of the NO_x limit, the permittee may reduce the subsequent performance test to once every 2 years (no more than 26 calendar months following the previous performance test). The facility may use the fuel monitoring tariffs to calculate and report actual SO₂ emissions.

The permittee shall record the hours of each turbine that is operated at low temperature (defined as < 0°F), low load (defined as < 40%) and each startup shutdown event.

Within three months upon startup of either turbine, existing compressor engines EU001 through 008 shall be permanently shut down.

Emission Unit 013 (713), Emergency Generator

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
NO _x	2.0 g/hp-hr	40 CFR 60, Subpart JJJJ, Table 1	2.0 g/hp-hr, Manufacturer Guarantee	Initial performance testing, and every 8760 hours or 3 years, whichever comes first.
CO	4.0 g/hp-hr		1.6 g/hp-hr, Manufacturer Guarantee	
VOC	1.0 g/hp-hr		0.02 g/hp-hr, Manufacturer Guarantee	

Initial Construction Date: Proposed March 2021

Process Description:

Model: Waukesha VGF-L36GL (non-certified)
 Model Year: 2020
 Power: 880 hp
 Primary Fuel: Natural Gas
 Controls: None

Emission Unit 013 (713), Emergency Generator

Applicable Regulation:

401 KAR 60:005, Section 2(2)(eeee), 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

Comments:

Note: D.C. Circuit Court [*Delaware v. EPA*, 785 F. 3d 1 (D.C. Cir. 2015)] has vacated the provisions in 40 CFR 63, Subpart ZZZZ and 60, Subpart JJJJ that contain the 100-hour exemption for operation of emergency engines for purposes of emergency demand response under 40 CFR 63.6640(f)(2)(ii)-(iii) and 60.4243(d)(2)(ii)-(iii). The D.C. Circuit Court issued the mandate for the vacatur on May 4, 2016.

NO_x, CO, VOC, CO₂, CH₄ and Formaldehyde are all calculated based on manufacturer guarantee. Nitrous oxide is calculated using Table C-2 from 40 CFR 98, Subpart C. All other pollutants are calculated using AP-42 Chapter 3.2 Table 2.

To meet the requirements of 40 CFR 60, Subpart JJJJ, the permittee shall monitor to verify that the engine meets the requirements for an emergency engine, and keep records of the maintenance and compliance demonstration (required initial and subsequent testing) for the emissions limitations in Table 1.

Upon startup of the emergency generator, the existing emergency generator EU 009 shall be permanently shut down.

Emission Unit 014 (714), Fuel Gas Heater

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.56 lb/mmBtu	401 KAR 59:015, Section 4(1)(a)	7.6 lb/mmscf, AP-42 1.4-1	Assumed while burning natural gas
	20% Opacity	401 KAR 59:015, Section 4(2)	NA	
SO ₂	3.0 lb/mmBtu	401 KAR 59:015, Section 5(1)(a)1	0.6 lb/mmscf, AP-42 1.4-1	

Initial Construction Date: Proposed March 2021

Process Description:

Heat Input Capacity: 1.6 MMBtu/hr
 Fuel: Natural Gas
 Controls: None

Applicable Regulation:

401 KAR 59:015, New indirect heat exchangers.

State-Origin requirements:

401 KAR 63:020, Potentially Hazardous matter or toxic substances.

Emission Unit 014 (714), Fuel Gas Heater

Non-applicable Regulation:

401 KAR 60:005, Section 2(2)(d), 40 C.F.R. 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial Commercial-Institutional Steam Generating Units, is not applicable to the fuel gas heater, as it is rated at less than 10 MMBtu/hr.

401 KAR 63:002, Section 2(4)(iiii), 40 C.F.R. 63.7480 to 63.7575, Tables 1 to 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, is not applicable as the facility will be considered an area source of HAPs after the proposed project to install this unit.

401 KAR 63:002, Section 2(4)(jjjj), 40 C.F.R. 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, is not applicable as this heater is only capable of firing natural gas.

Comments:

GHG's are calculated using 40 CFR 98, Subpart C Tables 1 and 2, all other emissions are calculated using AP-42 Chapter 1.4 Tables 1, 2 and 3.

To comply with 401 KAR 59:015, Section 7, the permittee shall keep records of recommended procedures for a unit of similar design, for which manufacturer's recommended procedures are available, as approved by the Cabinet

Upon startup of the fuel gas heater, existing boiler CB001 shall be permanently shut down.

Emission Unit FUG, Fugitive Piping Components

Initial Modification Date: Proposed March 2021

Process Description:

Pipe Component	*Number of Components
Connections	11,175
Open Ended Lines	128
Pump Seals	7
Valves	2,330
Other	42

* NOTE - The pipeline equipment count listed above reflects an accurate count of the equipment as of the date of issuance of this permit but is not intended to limit the permittee to the exact numbers specified. The permittee may add or remove pipeline equipment without a permit revision as long as the equipment continues to comply with the applicable requirements listed below, and the changes do not cause a significant increase of emissions or potential to emit.

Applicable Regulation:

401 KAR 63:020, Potentially Hazardous matter or toxic substances. [State-Origin requirement]

Non-applicable Regulation:

401 KAR 60:005, Section 2(2)(iiii), 40 C.F.R. 60.5360a to 60.5432a, Tables 1 to 3 (Subpart OOOOa), Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification

Emission Unit FUG, Fugitive Piping Components
<p>or Reconstruction Commenced After September 18, 2015, is not applicable to this facilities as the facility does not meet the definition of a “Crude Oil and Natural Gas Production Source” defined in 40 CFR 60.5430a as updated in 85 FR 57070 (September 14, 2020) and 85 FR 57438 (September 15, 2020).</p> <p>Comments: Fugitive emissions are calculated using emission factors from EPA 453/R-95-017 Table 2-4, and Mass balance is used to calculate the total VOC and individual HAPs.</p>

Units to be removed with proposed Significant Revision:

Emission Unit 001 through 008 (701-708), Reciprocating Compression Engines				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
NO _x	reduction of past emissions by 82%	401 KAR 51:150, Section 3	EU004: 3.0 g/bhp-hr EU006 and EU007: 9.25 g/bhp-hr EU008: 7 g/bhp-hr, Engineering Estimates	Operate according to the Complinance plan (including testing)
Initial Construction Date: EU 001-004: 1964; EU 005: 1965; EU 006-007: 1969; EU 008: 1970				
Process Description:				
Emission Unit 001 (701) 2 Stroke Lean Burn (2SLB) Reciprocating Compressor Engine				
Manufacture and Model: Cooper-Bessemer 8V250				
Primary Fuel: Natural Gas				
Power Output: 2,700 horse power (hp)				
Max Operating Rate: 18.49 million British Thermal Units per hour, (mmBtu/hr)				
Controls: None				
Emission Unit 002 (702) 2SLB Reciprocating Compressor Engine				
Manufacture and Model: Cooper-Bessemer 8V250				
Primary Fuel: Natural Gas				
Power Output: 2,700 hp				
Max Operating Rate: 18.49 mmBtu/hr				
Controls: None				
Emission Unit 003 (703) 2SLB Reciprocating Compressor Engine				
Manufacture and Model: Cooper-Bessemer 8V250				
Primary Fuel: Natural Gas				
Power Output: 2,700 hp				
Max Operating Rate: 18.49 mmBtu/hr				
Controls: None				
Emission Unit 004 (704) 2SLB Reciprocating Compressor Engine				
Manufacture and Model: Cooper-Bessemer 8V250				
Primary Fuel: Natural Gas				
Power Output: 2,700 hp				

Emission Unit 001 through 008 (701-708), Reciprocating Compression Engines

Max Operating Rate: 18.49 mmBtu/hr
Controls: Inherent Low Emission Combustion (LEC) technology for NOX SIP Rule

Emission Unit 005 (705) 2SLB Reciprocating Compressor Engine

Manufacture and Model: Cooper-Bessemer 8V250
Primary Fuel: Natural Gas
Power Output: 2,700 hp
Max Operating Rate: 18.49 mmBtu/hr
Controls: None

Emission Unit 006 (706) 4 Stroke Lean Burn (4SLB) Reciprocating Compressor Engine

Manufacture and Model: Ingersoll-Rand KVR616
Primary Fuel: Natural Gas
Power Output: 6,000 hp
Max Operating Rate: 39.0 mmBtu/hr
Controls: Inherent LEC technology for NOX SIP Rule

Emission Unit 007 (707) 4SLB Reciprocating Compressor Engine

Manufacture and Model: Ingersoll-Rand KVR616
Primary Fuel: Natural Gas
Power Output: 6,000 hp
Max Operating Rate: 39.0 mmBtu/hr
Controls: Inherent LEC technology for NOX SIP Rule

Emission Unit 008 (708) 2SLB Reciprocating Compressor Engine

Manufacture and Model: Cooper-Bessemer 16Z330
Primary Fuel: Natural Gas
Power Output: 10,833 hp
Max Operating Rate: 74.75 mmBtu/hr
Controls: Inherent LEC technology for NOX SIP Rule

Applicable Regulation:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

401 KAR 51:150, NOX requirements for stationary internal combustion engines.
[As applicable to engines 004, 006, 007, and 008]

Comments:

Emissions for CO and NO_x are calculated using Engineering Estimates, and AP-42 Chapter 3.2 is used for all other pollutants. GHG's are calculated using 40 CFR 98, Subpart C Tables 1 and 2.

Within three (3) months upon startup of either EU 011 or EU 012 (Compression turbines) the permittee shall permanently shut down EU 001 through EU 008 (Existing Compression Engines)

Emission Unit 009 (709), Emergency Generator

Initial Modification Date: 1999

Process Description:

Emission Unit 009 (709) 4SLB Reciprocating Emergency Generator Engine

Manufacture and Model: Waukesha H24GL

Primary Fuel: Natural Gas

Power Output: 585 hp

Max Operating Rate: 5.0 mmBtu/hr

Controls: None

Applicable Regulation:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Note: D.C. Circuit Court [Delaware v. EPA, 785 F. 3d 1 (D.C. Cir. 2015)] has vacated the provisions in 40 CFR 63, Subpart ZZZZ that contain the 100-hour exemption for operation of emergency engines for purposes of emergency demand response under 40 CFR 63.6640(f)(2)(ii)-(iii). The D.C. Circuit Court issued the mandate for the vacatur on May 4, 2016.

Comments:

Emissions for CO and NO_x are calculated using Engineering Estimates, and AP-42 Chapter 3.2 is used for all other pollutants. GHG's are calculated using 40 CFR 98, Subpart C Tables 1 and 2.

The permittee shall permanently shutdown EU 009 upon start-up of EU 013.

Emission Unit CB001, Kewanee Natural Gas-Fired Boiler

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.56 lb/mmBtu	401 KAR 59:015, Section 4(1)(a)	7.6 lb/mmscf, AP-42 1.4-1	Assumed while burning natural gas
	20% Opacity	401 KAR 59:015, Section 4(2)	NA	
SO ₂	3.0 lb/mmBtu	401 KAR 59:015, Section 5(1)(a)1	0.6 lb/mmscf, AP-42 1.4-1	

Initial Construction Date: 1990

Process Description:

Primary Fuel: Natural Gas

Max Operating Rate: 6.695 mmBtu/hr

Controls: None

Applicable Regulation:

401 KAR 59:015, New indirect heat exchangers.

401 KAR 63:002, Section 2(4)(iiii), 40 C.F.R. 63.7480 to 63.7575, Tables 1 to 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.

Emission Unit CB001, Kewanee Natural Gas-Fired Boiler

Comments:

GHG's are calculated using 40 CFR 98, Subpart C Tables 1 and 2, all other emissions are calculated using AP-42 Chapter 1.4 Tables 1, 2 and 3.

The permittee shall permanently shutdown CB001 upon start-up of EU 014.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements/Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Throughput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
004 (704)	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, 7E	3.0 g/hp-hr	2.66 g/hp-hr	2,679.2 hp	CMN20070001	4/27 and 5/30 2007
006 (706)						9.25 g/hp-hr	7.41 g/hp-hr	5,992.3 hp		
006 (706)	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, 7E	9.25 g/hp-hr	6.01 g/hp-hr	6,043.3 hp	CMN20070002	8/7-9/2007
007 (707)						9.25 g/hp-hr	6.09 g/hp-hr	6,000 hp		
008 (708)						7.0 g/hp-hr	6.67 g/hp-hr	10,486.3 hp		
004 (704)	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, ASTM6522-00	3.0 g/hp-hr	1.9 g/hp-hr	2,598 hp	CMN20080001	8/12 and 8/21/2008
006 (706)						9.25 g/hp-hr	3.8 g/hp-hr	5,571 hp		
004 (704)	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	3.0 g/hp-hr	2.4 g/hp-hr	19,616 scfh	CMN20090001	8/20/2009
706						9.25 g/hp-hr	3.5 g/hp-hr	19,287 scfh		
707						9.25 g/hp-hr	4.2 g/hp-hr	19,193 scfh		
704	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	3.0 g/hp-hr	2.2 g/hp-hr	2,595 hp	CMN20100001	9/7-9/2010
706						9.25 g/hp-hr	4.8 g/hp-hr	5,508 hp		
707						9.25 g/hp-hr	5 g/hp-hr	5,614 hp		

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Throughput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
704	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	3.0 g/hp-hr	1.3 g/hp-hr	2,552 hp	CMN20110001	6/21-22/2011
706						9.25 g/hp-hr	5.0 g/hp-hr	5,680 hp		
707	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	9.25 g/hp-hr	4.4 g/hp-hr	5,573 hp	CMN20110002	8/29/2011
704	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	3.0 g/hp-hr	1.9 g/hp-hr	2,599 hp	CMN20120001	7/6 and 8/20 2012
706						9.25 g/hp-hr	6.7 g/hp-hr	5,380 hp		
707						9.25 g/hp-hr	7.1 g/hp-hr	5,468 hp		
706	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	9.25 g/hp-hr	4.9 g/hp-hr	5,579 hp	CMN20130001	7/08/2013
704	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	3.0 g/hp-hr	1.7 g/hp-hr	2,588 hp	CMN20130001	8/19 and 9/16 2013
707						9.25 g/hp-hr	4.5 g/hp-hr	5,613 hp		
708						7.0 g/hp-hr	6.1 g/hp-hr	9,131 hp		
704	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	ASTM6522-00	3.0 g/hp-hr	2.7 g/hp-hr	2,543 hp	CMN20140001	8/19/2014
707						9.25 g/hp-hr	2.3 g/hp-hr	5,628 hp		
707	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, 7E	9.25 g/hp-hr	4.04 g/hp-hr	5,680 hp	CMN20170001	9/29/2017

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Throughput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
706	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, 7E	9.25 g/hp-hr	1.592 g/hp-hr	4,806.9 hp	CMN20180001	6/08/2018
704						3.0 g/hp-hr	1.87 g/hp-hr	2,413.1 hp		
707	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	CTM - 030	9.25 g/hp-hr	7.02 g/hp-hr	5,328 hp	CMN20180002	9/26/2018
704	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, 7E	3.0 g/hp-hr	1.91 g/hp-hr	2,547.3 hp	CMN20190001; CMN20190002	8/21 and 22/2019
706						9.25 g/hp-hr	NA	NA		
707						9.25 g/hp-hr	2.95 g/hp-hr	5,257.6 hp		
708						7.0 g/hp-hr	NA	NA		
707	*LEC	NO _x	401 KAR 51:150 Section 6(1)	**Once per ozone season	3A, 7E	9.25 g/hp-hr	TBD	TBD	CMN20200001	9/15/2020
708						7.0 g/hp-hr	TBD	TBD		
704						3.0 g/hp-hr	TBD	TBD		
706						9.25 g/hp-hr	TBD	TBD		

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Throughput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
011 and 012	SOLoNO _x Burners	NO _x	40 CFR 60.4400(a)	Initial and annual	7E or 20	25ppm, 15% O ₂ or 150 ng/J (1.2 lb/MWh)	TBD	TBD	TBD	NA
013	None	NO _x	40 CFR 60.4243(b)(2)(ii)	Initial and every 8760 hours or 3 years, whichever is first	7E or 20	2.0 g/hp-hr	TBD	TBD	TBD	TBD
		CO			10	4.0 g/hp-hr	TBD	TBD	TBD	TBD
		VOC			25A	1.0 g/hp-hr	TBD	TBD	TBD	TBD

Footnotes:

*Inherent LEC technology for NO_x SIP Rule.

**Testing is performed once per Ozone season only if the affected engine operates more than 300 hours during that period.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

N/A

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:015, New indirect heat exchangers.	014
401 KAR 60:005, Section 2(2)(eeee), 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.	013
401 KAR 60:005, Section 2(2)(ffff), 40 C.F.R. 60.4300 to 60.4420, Table 1 (Subpart KKKK), Standards of Performance for Stationary Combustion Turbines.	011 and 012
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.	013
401 KAR 63:020, Potentially Hazardous matter or toxic substances.	011, 012 and 014

Table C - Summary of Precluded Regulations:

N/A

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulations	Emission Unit
401 KAR 51:210. CAIR NO _x annual trading program.	011 and 012
401 KAR 51:220. CAIR NO _x ozone season trading program.	
401 KAR 51:230. CAIR SO ₂ trading program.	
401 KAR 63:002, Section 2(4)(dddd), 40 C.F.R. 63.6080 to 63.6175, Tables 1 to 7 (Subpart YYYY), National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.	
40 CFR 64, Compliance assurance monitoring.	FUG
401 KAR 60:005, Section 2(2)(iiii), 40 C.F.R. 60.5360a to 60.5432a, Tables 1 to 3 (Subpart OOOOa), Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015.	
401 KAR 60:005, Section 2(2)(d), 40 C.F.R. 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial Commercial-Institutional Steam Generating Units.	014
401 KAR 63:002, Section 2(4)(iiii), 40 C.F.R. 63.7480 to 63.7575, Tables 1 to 13 (Subpart DDDDD), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.	
401 KAR 63:002, Section 2(4)(jjjjj), 40 C.F.R. 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources.	

Air Toxic Analysis

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances.

The Division for Air Quality (Division) has performed SCREENView on January 20, 2021 of potentially hazardous matter or toxic substances (Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Hexane; N-Hexane, Methanol, Naphthalene, Toluene and Xylenes (Total)) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

Single Source Determination

N/A

SECTION 5 - PERMITTING HISTORY

Permit	Permit type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
G-04-001	Renewal	APE20040001	NA	May 27, 2005	Renewal	NA
G-04-001 R1	Sig Riv	APE20050001	NA	NA	Low Emission Combustion Modification on Engines 706, 707 and 708	No
G-09-002	Renewal	APE20090001	2/11/2010	10/4/2010	Renewal	NA
V-15-038	Renewal	APE20150001	6/25/2015	1/4/2016	Renewal	NA
V-15-038 R1	Minor Revision	APE20170002	10/11/2017	2/3/2018	Emergency Engine Status and Incorp 502(b)(10)	No

SECTION 6 – PERMIT APPLICATION HISTORY:

None

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
MSDS	– Material Safety Data Sheets
mmHg	– Millimeter of mercury column height
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO _x	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM ₁₀	– Particulate Matter equal to or smaller than 10 micrometers
PM _{2.5}	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO ₂	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds

APPENDIX B – INDIRECT HEAT EXCHANGER HISTORY

Emission Unit	Construction Date	Date Removed	Heat Capacity (MMBtu/hr)	Total For the Year (T)	PM Emission Limit (E_P)	SO₂ Emission Limit (E_S)
CB001	1990	March 2021	6.695	6.695	0.56 lb/mmBtu	3.0 lb/mmBtu
014	March 2021	NA	1.6	8.295		